

fingerlings, start harvesting them in the second or third year after stocking when they have reached 9 to 10 inches. If the catfish population is one of those rare ones in Michigan that can sustain itself by natural reproduction, remove only 10-15 fish per acre each year. Usually, however, replenishment will be by annual restocking, and all fish caught above whatever size pleases the owner can be harvested.

Bluegills and Other Panfish

Start harvesting as soon as they are a size you like. In new ponds or ones where fish have been eradicated, some bluegills stocked as fingerlings should exceed 4 inches the next summer and 6 inches the summer after that.

Follow two harvest rules: (1) Remove as many under-6-inchers as you can. (2) Greatly restrict harvest of over-6-inchers. This works against overcrowding and helps superior brood stock survive. Just as with bass, the biggest, fastest growing bluegills bite most readily and tend to be caught first.

The table on page 33 indicates lengths bluegills should reach at each age. The graph on page 33 shows how much bluegills should weigh at each length. If the bluegills are growing too slowly or are thin, it is an indication of overcrowding.

The Bass-Bluegill Combination

Follow the procedures outlined in the above sections on bass and on bluegills. Harvest at least 4 pounds of bluegills for each pound of bass harvested. This helps bass keep the upper hand longer. It is especially important to restrict harvest of over-15-inch (43 cm) bass. At that length, they may be nearly 2 pounds and are probably just beginning to eat enough bluegills to have much effect in controlling their population. Have fun catching large bass and releasing them alive. Try to

build up a substantial population of bass weighing 3, 4, and 5 pounds.

No matter how intensively you manage the bass-bluegill pond, the day will probably come when the bluegills simply take over. Bass spawning success will decline, large bass and bluegills will disappear, and there will be hordes of small bluegills—all about the same size. When this occurs, the owner is often tempted to plant more and bigger fish—maybe even walleye or northern pike. Resist such impulses! Walleye and northern pike are not suited to life in small warmwater ponds (Chapter 5), and the only cure for stunted panfish is a sound program of population control (Chapter 9).

Higher Stocking Levels and Fish Feeding Not Recommended

Higher stocking levels may lead to the fish outstripping the natural food supply. Although many fish will eat pelleted fish feeds, it is usually best for pond health, appearance and your pocketbook to manage so that the fish are sustained by the food that occurs naturally in the pond. Adding pellets, bread or other fish food may increase fish growth in an overcrowded pond—but it will probably also accelerate growth of algae and other aquatic plants to excessive amounts. The result may be not only unsightly and interfere with fishing, but build-up of organic matter in the pond may cause oxygen depletion and die-off of fish.

Pond Fertilization and Liming

Fertilizing and liming are generally **not** recommended for Michigan sport-fishing ponds. Although often advised in the soft water ponds in the Deep South to increase algae growth to

enhance the food chain, fertilization here usually causes excessive weed and algae growth. The result is plant control problems (Chapter 10), dissolved oxygen shortage for fish due to rotting of accumulated organic matter, and eventual stress or even death of fish.

NEVER use fertilizer for creating algal growth to stifle rooted plants, as is done in the South. Such enrichment is so strong as to run grave risk of causing winterkill of fish.

Liming is sometimes used to raise alkalinity of the water to counteract acidity problems or to allow the pond to handle phosphorus fertility in ways that boost production of fish rather than of bluegreen algae nuisances (Chapter 4).

Fertilizing and liming of ponds should be done only under direction of a water chemistry expert who understands proper balance between alkalinity and phosphorus content and who can determine the right dosage of phosphorus or lime.

Emergency Aeration of the Pond

In Chapters 8 and 10 are described ways to inject a stream of air bubbles at the deepest part of the pond to circulate the water and keep sufficient dissolved oxygen in the deep zone. Aeration rarely is effective in aquatic plant control but in an emergency can be used to rescue fish from a temporary crisis of diminishing dissolved oxygen content, such as on especially hot summer nights or during an especially hard winter. Aerators are particularly useful in preventing winterkill of fish. The circulation achieved by the bubble stream maintains an open area of ice-free water through which the pond can take on oxygen. However, an aerator should not be needed in a properly designed pond.